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10/091,176	03/05/2002	Charles Patton	5181-84600	9947

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EXAMINER	
HARRISON, CHANTE E	
ART UNIT	**PAPER NUMBER**
2672	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

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Office Action Summary	Application No.	Applicant(s)	
	10/091,176	PATTON, CHARLES	
	Examiner	Art Unit	
	Chante Harrison	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications: Amendment filed on 6/28/04.

This action is made FINAL.

2. Claims 1-17 are pending in the case. Claims 1, 8 and 15 are independent claims. Claim 1 has been amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derek Lentz, U.S. Patent 5,515,494, 5/1996 and further in view of Jerome Duluk et al., U.S. Patent 6,552,723 B1 4/2003.

As per dependent claim 1, Lentz discloses a method for comparing a pixel against one or more windows, the method comprising: passing said pixel data (i.e. passing pixel data to a complimentary window boundary test performed independently for each window) (col. 11, ll. 4-8; Fig. 7); computing window result in each computation, wherein each computation corresponds to one of said one or more windows (i.e. a test of each window is performed to determine the window's visibility and the inclusion of pixels with

the window) (col. 11, ll. 35-42), wherein said window result comprises an indication of inclusion of said pixel within the corresponding one of said one or more windows (i.e. the computation goes on to determine pixel inclusion after determining the window visibility) (col. 12, ll. 23-35); outputting a window word (i.e. inclusion result) from each computation, wherein said outputting said window word comprises, for each of computation except for a last computation, passing said window word to next computation, (i.e. a complimentary test suggests that the test results are passed along to the test of another window, such that upon testing the last window the results of the tests are not passed, as there are no more windows to process) (col. 10, ll. 18-24); and examining said window word available in the last computation to determine if the pixel is included in the one or more windows Using the results of a clip boundary test, which is complimentary, along with the write enable data to draw the active data in a window suggests that data passed along to each independent window test is examined to determine the pixel that is included and available for display (col. 10, ll. 15-25; Fig. 10).

Lentz fails to specifically disclose using a pipeline, wherein said pipeline comprises two or more pipeline segments and wherein said window word comprises said window result and previous window result, which Duluk discloses (abstract; col.9, ll. 35-45; col.10, ll.12-21).

Lentz teaches performing multiple pixel operations to determine window visibility and pixel inclusion within the visible windows; and successively writing the pixel bits that are included in visible windows to a frame buffer.

Duluk discloses a pipeline having stages that receive primitive data, which includes point data, and compute primitive/point inclusiveness within a window/tile based on tile coordinates.

It would have been obvious to one of skill in the art to incorporate a pipeline having multiple segments that receive pixel data and determine pixel inclusiveness within a window and pass the results of both to the next pipeline segment with the disclosure of Lentz because Lentz teaches performing multiple pixel operations and passing the data to a frame buffer, which compares to the graphics processing of a pipeline in that a pipeline successively performs any of multiple operations on graphics data and passes the resulting data to a frame buffer.

As per dependent claims 2 and 9, Lentz discloses said pixel comprises a horizontal and a vertical coordinate that define position of said pixel on a screen (i.e. bits represent pixel coordinates) (col. 1,ll.38-45) in view of Duluk.

As per dependent claims 3 and 10, Lentz discloses each of said one or more windows comprises a first horizontal and a second horizontal coordinate and a first vertical and a second vertical coordinate that define boundaries of each of said one or more windows on the screen (Fig. 5; col. 9, ll. 55-65) in view of Duluk.

As per dependent claims 4 and 11, Lentz discloses computing horizontal inclusion by computing if said horizontal pixel coordinate is located between the first horizontal and the second horizontal coordinate of each of said one or more windows; and computing vertical inclusion if said vertical pixel coordinate is located between the first vertical and the second vertical coordinate of each of said one or more windows (i.e. window clip boundary coordinates are defined and window visibility is determined; upon a window passing a visibility test, pixels are tested to determine whether they are included in the window) (col. 6, ll. 20-22; col. 9,ll. 55-65; col. 11, ll. 4-11) in view of Duluk.

As per dependent claims 5 and 12, Lentz discloses setting said indication of inclusion of said pixel to positive if both said horizontal and vertical inclusions are true, and setting said indication of inclusion of said pixel negative if one or more of said horizontal and vertical inclusions are false (i.e. bits/pixels that are unobscured, e.g. visible and included, are written to the buffer as all ones, e.g. positively; and bits/pixels that are obscured, e.g. not visible and not included, are written to the buffer oppositely, as zeros, e.g. negatively) (Fig. 7 "712"; col. 11, ll. 28-34) in view of Duluk.

As per dependent claims 6, 13 and 16, Lentz discloses previous window result comprises one or more previous window results (i.e. compare current pixel window location to previous stored foreground pixels that are visible window results) (col. 6, ll. 24-36) in view of Duluk.

As per dependent claims 7, 14 and 17, Lentz discloses clipping said pixel after said examining determines that said pixel is not included in any of said one or more windows (col. 5, ll. 16-20); propagating said pixel after said examining determines that said pixel is included in at least one of said one or more windows (col. 5, ll. 15-18; col. 11, ll. 13-15); wherein said one or more windows comprise one or more 2-D window (abstract; Fig. 4) in view of Duluk.

As per independent claim 8, Lentz discloses a method comprising: supplying window boundary coordinates for a plurality of windows (col. 9, ll. 49-55), wherein each segment of the computation corresponds to one of said windows (i.e. a test of each window is performed to determine the window's visibility and the inclusion of pixels with the window) (col. 11, ll. 35-42); each computation stage determining if a corresponding pixel is included in the corresponding window (i.e. the computation goes on to determine pixel inclusion after determining the window visibility) (col. 12, ll. 23-35), and passing the corresponding pixel and a result of said inclusion determination to a next segment of the computation (i.e. data for included pixels are passed to a frame buffer) (col. 6, ll. 23-25).

Lentz fails to specifically disclose supplying data to a computational pipeline having stages corresponding to the windows, which Duluk discloses (abstract; Fig. 2; col. 4, ll. 45-55).

Lentz teaches performing multiple pixel operations to determine window visibility and pixel inclusion within the visible windows; and successively writing the pixel bits that are included in visible windows to a frame buffer.

Duluk discloses a pipeline having stages that receive primitive data, which includes point data, and compute primitive/point inclusiveness within a window/tile based on tile coordinates.

It would have been obvious to one of skill in the art to incorporate a supplying data to a computational pipeline having stages corresponding to the windows with disclosure of Lentz because Lentz teaches performing multiple pixel operations and passing the data to a frame buffer, which compares to the graphics processing of a pipeline in that a pipeline successively performs any of multiple operations on graphics data and passes the resulting data to a frame buffer.

As per independent claim 15, Lentz discloses a system for determining inclusion of a pixel with respect to each of one or more windows, wherein the pixel comprises a horizontal and a vertical coordinate, wherein each of said one or more windows comprises a first horizontal and a second horizontal coordinate and a first vertical and a second vertical coordinate that define boundaries of each of said one or more windows in a two-dimensional space, the system comprising:, a computation for: (a) receive the horizontal and vertical coordinates of the pixel (i.e. each pixel is represented by bits that are relative to a plane that is provided to the system) (col. 1, ll. 38-42; col. 3,ll. 15-25), (b) compute a window result indicating whether or not said pixel

is located within said corresponding window (col. 12, ll. 23-35), and (c) pass the horizontal and vertical coordinates of the pixel and the window result to a next one of the computations (col. 6,ll.23-25).

Duluk discloses a pipeline having two or more pipeline segments (Fig. 2), wherein each one of said two or more pipeline segments corresponds to one of said one or more windows (col. 4, ll. 45-55), wherein each one of said two or more pipeline segments, except for a last of said two or more pipeline segments receives pixel coordinates (col. 8,ll. 20-30), determines the window result and passes both to the next one of the two or more pipeline segments (abstract; col.9, ll. 35-45; col.10, ll.12-21), which Lentz fails to specifically disclose.

Lentz teaches performing multiple pixel operations to determine window visibility and pixel inclusion within the visible windows; and successively writing the pixel bits that are included in visible windows to a frame buffer.

Duluk discloses a pipeline having stages that receive primitive data, which includes point data, and compute primitive/point inclusiveness within a window/tile based on tile coordinates.

It would have been obvious to one of skill in the art to incorporate a pipeline having multiple segments that receive pixel data and determine pixel inclusiveness within a window and pass the results of both to the next pipeline segment with the disclosure of Lentz because Lentz teaches performing multiple pixel operations and passing the data to a frame buffer, which compares to the graphics processing of a

pipeline in that a pipeline successively performs any of multiple operations on graphics data and passes the resulting data to a frame buffer.

Response to Arguments

3. Applicant's arguments filed 6/28/04 have been fully considered but they are not persuasive.

Applicant argues (pp. 7, Para 2) Lentz fails to teach comparing a pixel against one or more windows by passing said pixel data, computing a window result in each computation, wherein each computation corresponds to one of said one or more windows.

In reply, Lentz teaches performing a test of each window to determine the window's visibility and the inclusion of pixels within the window (col. 11, ll. 35-42). By testing a pixel against window clip boundaries (col. 11, ll. 5-10), Lentz determines when the pixel data is within the window clip boundaries and writes the pixel data to the frame buffer (col. 11, ll. 4-8). Lentz teaches the test exists independently for each window (col. 10, ll. 19-22). Lentz specifically teaches using a write enable plane to track the existence of a pixel in a window (col. 3,ll. 29-34; col. 7, ll. 58-61) as the window definition changes.

Applicant argues (pp. 8) Lentz operates to examine and indicate the visibility of windows relative to other windows, which differs from performing computations to indicate pixel inclusion within a corresponding window and examining a window wore in a last computation to determine the pixel's inclusion.

In reply, Lentz teaches determining whether a pixel exists in a window in addition to determining whether the pixel exists in a part of the window that is to be displayed (col. 3, ll. 29-34). Lentz teaches performing window clip boundary tests to determine whether a pixel is included in a window (col. 11, ll. 5-10), such that pixels that fall within the window boundary and are determined to be included and visible in the display are written to a frame buffer, while the write enable plane maintains the pixels that are included in a relative window.

Applicant argues Lentz does not teach outputting a window word from each computation, such that for each computation except for a last computation passing the window word to the next computation.

In reply, Lentz teaches the test for determining whether a pixel is to be written to the frame buffer because of its inclusion in a window is performed independently for each window and the test is complimentary (col. 10, ll. 18-24). Thus, Lentz's disclosure of a complimentary test suggests that the test results are passed along to the test of another window, such that upon testing the last window the results of the tests are not passed, as there are no more windows to process.

Applicant argues the previously cited portion of Lentz fails to teach examining the window word in the last computation.

In reply, Lentz teaches performing a hardware write enable test for each window. The write enable keeps track of pixel existence in a window and pixel availability for display (col. 3, ll. 29-34). The write enable test indicates that the pixel data determined to be included in the window and available to be written to the frame buffer also tests true for the write enable test (col. 11, ll. 35-44). Using the results of a clip boundary test, which is complimentary, along with the write enable data to draw the active data in a window suggests that data passed along to each independent window test is examined to determine the pixel that is included and available for display (col. 10, ll. 15-25; Fig. 10).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Lentz teaches performing multiple pixel operations to determine window visibility and pixel inclusion within the visible windows; and successively writing the pixel bits that are included in visible windows to a frame buffer. Duluk discloses a pipeline having stages that receive primitive data, which includes point data, and compute primitive/point inclusiveness within a window/tile based on tile coordinates. It would have been

obvious to one of skill in the art to incorporate the teachings of Duluk with the disclosure of Lentz because Lentz teaches performing multiple pixel operations and passing the data to a frame buffer, which compares to the graphics processing of a pipeline in that a pipeline successively performs any of multiple operations on graphics data and passes the resulting data to a frame buffer.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 703-305-3937. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chante Harrison
Examiner
Art Unit 2672

November 22, 2004

Jeffery A. Brier
JEFFERY BRIER
PRIMARY EXAMINER